Overcoming Coverage Challenges of Vaccination in Eradicating Meningococcus Outbreaks in Nigeria

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Introduction
Nigeria has the twelth highest under-five mortality rate in the world, one of every four of these deaths is preventable through vaccination. Yet, low coverage has continuously been a major challenge to vaccination against the outbreaks of meningococcus in Nigeria. Several factors have led to low vaccination coverage. These factors include mass rejection of vaccine by some communities and religious sects, especially in the northern part of Nigeria. This is as a result of the misconception that children who receive vaccines could be sterile (1-2). This view is widely shared by some communities that are polio-endemic settings.

Objective
The major aim of this paper is to report the strategies employed to achieve over 90% coverage during reactive immunization against the outbreak of meningococcus in the three most affected local government of Sokoto State, Nigeria.

Methods
The reactive vaccinations were conducted in the 3 local government areas (LGAs) in Sokoto State from April 28 to May 4, 2017. Data were entered and analyzed SPSS version 25.0 and findings were summarized as frequencies and proportions.

Results and Discussion
A total of 138,773 children were vaccinated. The cumulative coverage for all the three LGAs was 93.5%. The coverage was 97% in Bodinga, 91.2% in Dange Shuni, and 92.0% in Rabah LGAs, exceeding the target coverage of 90%. The overall vaccine usage was 94.0%. The major challenges identified were low turnout, cultural challenges, poor micro planning and logistics problems. The strategies door-to-door vaccination, consultation with village leaders, the use of flexible teams, and the use of land cruisers to reach the hard-to-reach-areas.

Table 1: CSM Vaccination Coverage Results

<table>
<thead>
<tr>
<th>LGA</th>
<th>Estimated target population</th>
<th>Cover population</th>
<th>%</th>
<th>Doses utilization rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodinga</td>
<td>53,095</td>
<td>51,510</td>
<td>97.0</td>
<td>51,510</td>
</tr>
<tr>
<td>Dange Shuni</td>
<td>63,011</td>
<td>57,497</td>
<td>91.2</td>
<td>57,497</td>
</tr>
<tr>
<td>Rabah</td>
<td>32,355</td>
<td>29,766</td>
<td>92.0</td>
<td>29,766</td>
</tr>
<tr>
<td>Overall</td>
<td>148,461</td>
<td>138,773</td>
<td>93.5</td>
<td>135,292</td>
</tr>
</tbody>
</table>

Discussion
- High coverage of vaccination against meningococcal outbreaks was achieved.
- The vaccine dosage used was optimum with over 90% utilization and low wastage.
- The proportion of missed children was minimal in line with the report of Okeibunor et al. (2014) but in contrast to the report of Onyeka et al. (2014).
- The various advocacy and sensitization visits carried out during the vaccination period helped to address several challenges on vaccination.
- The use of multiple and reactive vaccination strategies helped to increase coverage.
- The fixed site strategy was ineffective in some places, but the ‘door-to-door’ approach helped in attaining high coverage.
- Inclusion of village leaders as well as elderly women in the community, interviews, and regular meetings with the villages also helped in achieving wide coverage (Onyeka et al., 2014; WHO, 2013).
- Proper deliberations and planning in conjunction with several other pre-intervention activities helped to overcome logistic challenges.
- The use of MSF land cruisers also assisted in covering multiple sites and hard to reach areas.
- Timely transportation of the cold-chain maintenance to the local governments resulted in the timely distribution of vaccines and the reduction in vaccine wastage (Keugoung et al., 2012; Onyeka et al., 2014: Immunization programme in Anambra state, 2011; Abdurrahman, et al., 2011).

Figure 1: Age distribution of total coverage per local government area (LGA)

Figure 2: Challenges and overcoming Strategies

Conclusion
The results of the reactive vaccination against NMC in Sokoto state revealed that it is possible to achieve high coverage for meningococcal vaccination. The use of proper planning, adequate staff supervision, and the inclusion of community leaders as well as improved vaccine logistics, and door-to-door vaccination resulted in high coverage of over 90%. The strategies employed in this paper can be used and improved upon in order to achieve a better result in case of such outbreaks.

References